

## *Drosera capensis* (Droseraceae), a new naturalised record for Australia

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### Abstract

*Drosera capensis* L. (Droseraceae) is reported as a naturalised new record for Australia, occurring in the Central Coast bioregion of New South Wales. Although the full extent of the distribution of this species is not known, it is currently thought to be isolated to a small creek-side community within the Royal National Park, New South Wales, south of Sydney. The full extent of the invasion is being evaluated and control measures are being enacted to eradicate the known population within the park. A key to the species of *Drosera* occurring in New South Wales, amendments to the key to species occurring in Australia, together with a description of *D. capensis*, are provided.

### Introduction

*Drosera capensis* L. (Cape sundew; Droseraceae) is a small rosette-forming species native to the Cape region of South Africa, and has been phylogenetically placed within subgenus *Drosera* section *Drosera* (Rivadavia *et al.* 2003). A population of *D. capensis* was recently reported as naturalised to a small creek within the Royal National Park, Central Coast bioregion, New South Wales (Jobson 1354). This is a new record for Australia. Many naturalised colonies of *Utricularia subulata* (Lentibulariaceae) were located on the opposite bank (R. Gibson pers. comm., 8 April 2012) as well as several hundred metres downstream from the *Drosera* infestation (Jobson & Conn 2012). The significance of this proximity is yet to be determined. The South African *Utricularia sandersonii* is another recently discovered carnivorous plant species, in that case introduced to the Central Tablelands of New South Wales (Conn *et al.* 2004). These introductions may pose a risk to the local habitat and to Australia's herbaceous flora (Conn *et al.* 2004; Jobson & Conn 2012). Enthusiastic growers who propose to release exotic plants into natural communities need to remember that it is illegal to intentionally introduce plants to conservation reserves.

This species is commonly cultivated by carnivorous plant enthusiasts and is readily available for purchase in many Australian plant nurseries. In New Zealand, this species is listed as an invasive species (Heenan *et al.* 2004; NPPA 2008). It is also recorded as a naturalised weed in California (United States of America) (GCW 2007; USDA 2012). It is here regarded as probably invasive in Australia. Unfortunately, naturalised species frequently only become recognised problems after they are widespread and the costs of control and elimination are prohibitive (Sheil 1994). As yet, it is not known if plants of *D. capensis* in the Royal National Park will adversely affect the invaded habitat(s) environmentally and/or ecologically.

The full extent of the invasion is being evaluated by staff of the NSW National Parks and Wildlife Service, and

control measures are being enacted to eradicate the known population within the Royal National Park. To aid with the identification of this species, a detailed description and an identification key to all species of *Drosera* occurring in New South Wales, as well as amendments to the Australian key to species, are provided. The revised key to species includes the species recently recognised by Gibson et al. (2012).

*Drosera capensis* L., *Species Plantarum* 1: 282 (1753)

Robust, evergreen perennial herb up to c. 150 mm high; stem short, woody; rhizomatous; forming colonies. Leaves forming a basal rosette (younger leaves  $\pm$  erect), simple; petiole almost same length and width as lamina; lamina linear, flattened, up to 35(–65) mm long, c. 4 mm wide; apex truncate to obtuse; abaxial surface glabrous; adaxial surface densely covered with stalked glands, particularly on margin. Inflorescences 15–30-flowered; scapes up to c. 300 mm high, 1 flower (or less frequently 2) open at any one time. Calyx shorter than corolla; lobes c. 5 mm long, sparsely hairy. Corolla usually pink-mauve; broadly obovate, 10–15 mm long. Stamens short; connective rhomboidal; anthers divergent basally. Style divided from base; stigma swollen. Capsule obloid, c. 4 mm long. Seeds many, fusiform, c. 0.8 mm long, black.

**Flowering:** in cultivation near Sydney (New South Wales) – August to May. In Africa – December to January (Obermeyer 1970).

**Australian voucher: New South Wales:** Central Coast: Royal National Park, Flatrock Crossing of South West Arm Creek, Jobson 1354, 13 Dec 2011 (NSW889700).

**Weed status:** it is recorded as growing in a range of wetland habitats in New Zealand where it displaces small native plants (NPPA 2008). This species spreads rapidly by seed.

The infestation of *D. capensis* seems to be restricted to a small (5 m long) section of South West Arm Creek, several hundred metres north of the Flatrock Crossing bridge. The population consists of at least one hundred adult plants (pers. observation). A brief survey along the creek line, approximately 700 m north of the infestation failed to reveal any additional populations.

The population appears to occupy a microhabitat that contained other carnivorous plant species such as *Drosera spatulata*, *D. binata*, *Utricularia uniflora*, *U. uliginosa*, and the occasional *U. lateriflora*. (Figs 1a). In New South Wales flower and seed production is profuse (Fig. 1 b, c), though many of the inflorescences were infested with aphids (Fig. 1d).

### Key to *Drosera* in New South Wales

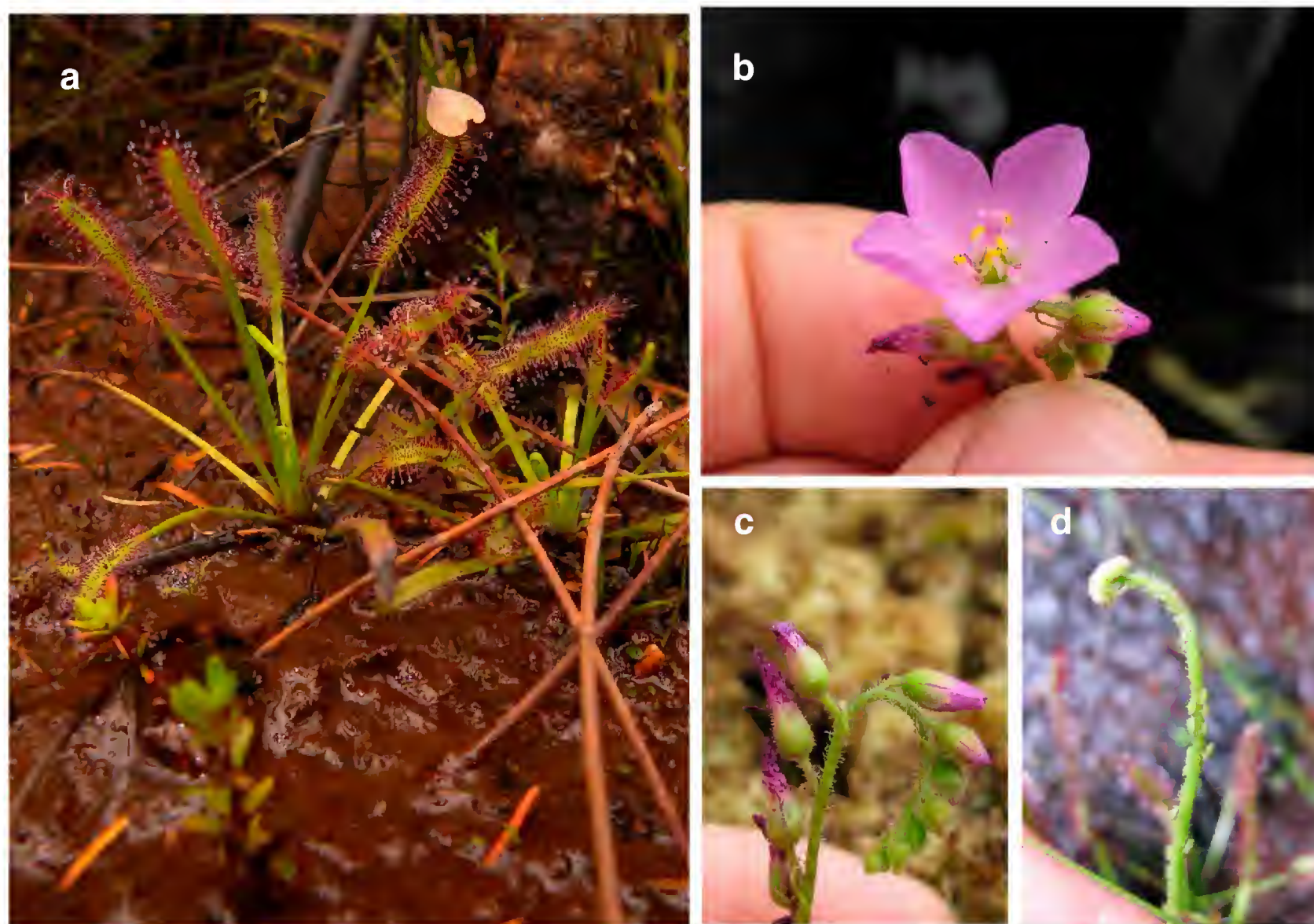
The following key is a modification of Harden (1990; 2000; 2000+).

- |     |   |                      |
|-----|---|----------------------|
| 1a. | Cauline leaves peltate with lamina concave, circular, reniform or crescent-shaped .....   | 2                    |
| 1b. | Cauline leaves absent, if present then lamina linear, spatulate or fan-shaped, not peltate .....  | 6                    |
| 2a. | Sepals variously hairy, sometimes glabrous; margin fimbriate .....  | 3                    |
| 2b. | Sepals glabrous; margin entire, erose or denticulate .....  | 4                    |
| 3a. | Basal rosette of leaves red; cauline leaves <6 mm wide; sepals 0.1–1.5 mm wide; seeds ovoid to obovoid, 0.4–0.8 mm long, with surface shallowly reticulate .....                          | <i>D. peltata</i>    |
| 3b. | Basal rosette of leaves yellow-green; cauline leaves up to 10 mm wide; sepals 0.7–2.4 mm wide; seeds cylindrical, pandurate to obovoid, 0.5–0.8 mm long, with surface deeply pitted ..... | <i>D. hookeri</i>    |
| 4a. | Seeds always cylindrical, usually > 1 mm long .....   | <i>D. auriculata</i> |
| 4b. | Seeds ovoid or arachiform, rarely cylindrical and then < 1 mm long .....  | 5                    |
| 5a. | Seed surface shallowly pitted; seeds ovoid, < 0.4 mm long.....  | <i>D. lunata</i>     |
| 5b. | Seed surface deeply pitted; seed shape variable, ovoid, arachiform to shortly cylindrical, 0.5–0.8 mm long .....  | <i>D. hookeri</i>    |
| 6a. | Leaves simple, linear or if forked then lobes linear .....  | 7                    |
| 6b. | Leaves simple, varying from orbicular, obovate to flabellate, never linear nor forked .....   | 10                   |
| 7a. | Leaves cauline, simple .....  | <i>D. indica</i>     |
| 7b. | Leaves basal, simple or forked .....  | 8                    |
| 8a. | Leaves usually forked once, sometimes more; lobes 20–100 mm long; corolla white .....   | <i>D. binata</i>     |
| 8b. | Leaves simple, unlobed; corolla white to pink-mauve .....   | 9                    |

- 9a. Inflorescences 15–30-flowered; corolla usually pink-mauve (cultivars of dark pink or white are available) ..... *D. capensis*
- 9b. Inflorescences 1(–2)-flowered; corolla white ..... *D. arcturi*
- 10a. Leaves sessile or petiole shorter than lamina ..... 11
- 10b. Leaves with a distinct petiole, longer than the lamina ..... 12
- 11a. Bracts simple; calyx minutely glandular; styles 3, divided in 2 to base ..... *D. spatulata*
- 11b. Bracts trifid; calyx tuberculate; styles 5, filiform ..... *D. burmanni*
- 12a. Sepals and petals 5; inflorescence many-flowered, flowers orange or red; leaves not peltate, 10–20 mm long .....  
..... *D. glanduligera*
- 12b. Sepals and petals 4; flowers solitary, white; leaves peltate, 3–7 mm long ..... *D. pygmaea*

To include *D. capensis* in the *Flora of Australia* account of the genus (Marchant *et al.* 1982, p. 13), couplet 42 in the dichotomous key is here modified as follows:

- 41 Leaf lamina linear, simple or once-forked
  - 42 Leaf lamina simple
    - 42a Leaves cauline, basal leaves absent ..... 1. *D. indica*
    - 42a: Leaves basal, cauline leaves absent ..... *D. capensis*
  - 42: Leaf lamina once-forked..... 5. *D. binata*
- 41: Leaf lamina not linear



**Fig. 1.** *Drosera capensis*. **a**, upright habit showing strap-like petioles; **b**, flower; **c**, inflorescence with developing seed capsules; **d**, deformed inflorescence with infestation of aphids. (a, Image Robert Gibson, reproduced with permission; b–d, Jobson 1354).”

## References

- Conn BJ, Brown EA & Fairley AT (2004) *Utricularia sandersonii* (Lentibulariaceae), a new record for Australia. *Telopea* 10: 811–814
- GCW (2007) 'Global compendium of weeds.' <http://www.hear.org/gcw/> (accessed 26 March 2012)
- Gibson RP, Conn BJ & Bruhl JJ (2012) Morphological variation of the *Drosera peltata* complex (Droseraceae). *Australian Systematic Botany* 25: 49–80 (<http://dx.doi.org/http://dx.doi.org/10.1071/SB11030>)
- Harden GJ (1990) Droseraceae. Pp. 493–496 in Harden GJ (ed.) *Flora of New South Wales*, vol. 1. (University of New South Wales Press: Kensington)
- Harden GJ (2000) Droseraceae. Pp. 493–496 in Harden GJ (ed.) *Flora of New South Wales*, vol. 1, revised edition. (University of New South Wales Press: Kensington)
- Harden GJ (2000+) 'Droseraceae. In PlantNET.' (Royal Botanic Gardens and Domain Trust: Sydney) <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=gn&name=Drosera> (accessed July 2012)
- Heenan PB, de Lange PJ, Cameron EK, Ogle CC & Champion PD (2004) Checklist of dicotyledons, gymnosperms, and pteridophytes naturalised or casual in New Zealand: Additional records 2001–2003. *New Zealand Journal of Botany* 42: 797–814
- Jobson RW & Conn BJ (2012) *Utricularia subulata* L. (Lentibulariaceae): a new record from coastal regions of New South Wales, Australia. *Telopea* 14: 83–88.
- NPPA (2008) 'National Pest Plant Accord.' <http://www.biosecurity.govt.nz/nppa> (accessed 26 March 2012)
- Rivadavia F, Kondo K, Kato M & Mitsuyasu H (2003) Phylogeny of the sundews, *Drosera* (Droseraceae), based on chloroplast rbcL and nuclear 18S ribosomal dna sequences. *American Journal of Botany* 90: 123–130 (<http://dx.doi.org/10.3732/ajb.90.1.123>)
- USDA (2012) 'The PLANTS Database.' <http://plants.usda.gov> (accessed 26 March 2012)

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